embodiment, the provision of the helical groove 1B constructed in the manner mentioned above allows the quantity of lubricant oil, passing over the sliding surfaces 1A and 1B, to be increased. The frictional resistance presented by the sliding surface 1A can be reduced for the reason mentioned before, as indicated in FIG. 4. In addition, the occurrence of an impact sound between the sliding surfaces 1A and 2A of the sliding bearing of the rotating shaft 2 can be reduced, as indicated in FIG. 3.

Second Embodiment

FIG. 7 shows a second embodiment of the invention. In the first embodiment mentioned above, the valley *1b* is in the form of a gentle arc in cross section. By contrast, in the second embodiment, the valley *1b* is trapezoidal in section. Accordingly, the profile of the peak *1a* is in the form of a wedge having an acute angle in section. In other respects, the arrangement is similar to the first embodiment. Accordingly, similar experimental data are obtained as described in connection with the first embodiment, and therefore, a similar functioning and effect are achieved as in the first embodiment.

In both embodiments described above, the peak *1a* is helically continuous as a result of the helical groove 1B which continues in the circumferential direction of the sliding surface 1A. However, instead of providing a helical groove, there may be a plurality of annular grooves, which are continuous in the circumferential direction, may be formed in the sliding surface at a given axial spacing, thereby providing annular peaks which are discontinuous in the circumferential direction.

What is claimed is:

1. A sliding bearing including a plurality of axially spaced, annular continuous or discontinuous peaks which extend circumferentially on a surface of the sliding bearing which comes into sliding contact with a rotating shaft in which, as viewed in an axial cross-section, the various portions are defined on the basis of an imaginary reference line which intersects with individual peak regions, extends parallel to the axis and is determined such that the total cross-sectional area of peak regions located above the reference line is equal to the total cross-sectional area of valley-shaped recess regions located below the reference line, the top of the peak having a height ΔC above the imaginary reference line and a height as measured from the bottom of the valley-shaped recess to the top of the peak, denoted by h, the parameter ΔC being taken on an ordinate and the parameter h being taken on the abscissa in a graphical representation, the parameters ΔC and h being located within an area defined by four rectilinear lines given by the following mathematical equations:

$$h=\Delta C \quad (1)$$

$$h=5/1.9\Delta C \quad (2)$$

$$h=8 \quad (3)$$

$$\Delta C=1 \quad (4)$$

in which h and ΔC are measured in unit of μm.

2. A sliding bearing according to claim 1, in which ΔC is from 1 to 8 μm.

3. A sliding bearing according to claim 1, in which h is 5 μm and the pitch is 0.2 [μm] mm.

4. A sliding bearing according to claim 1, in which a helical groove is formed in the sliding surface to define an annular continuous peak which extends circumferentially between axially adjacent grooves.

5. A sliding bearing according to claim 1, in which a plurality of annular grooves are formed in the sliding surface to define a plurality of annular peaks which extend circumferentially between axially adjacent annular grooves, adjacent peaks being discontinuous from each other.

6. A sliding bearing according to claim 1, in which the valley-shaped recess is in the form of a gentle arc in cross-section.

7. A sliding bearing according to claim 1, in which the valley-shaped recess is trapezoidal in cross-section.

8. A sliding bearing according to claim 1, in which adjacent peaks have a pitch of about 200 μm.

9. A sliding bearing including a plurality of axially spaced, annular continuous or discontinuous peaks which extend circumferentially on a surface of the sliding bearing which comes into sliding contact with a rotating shaft in which, as viewed in an axial cross-section, the various portions are defined on the basis of an imaginary reference line which intersects with individual peak regions, extends parallel to the axis and is determined such that the total cross-sectional area of peak regions located above the reference line is equal to the total cross-sectional area of valley-shaped recess regions located below the reference line, the top of the peak having a height ΔC above the imaginary reference line and a height as measured from the bottom of the valley-shaped recess to the top of the peak, denoted by h, the parameter ΔC being taken on an ordinate and the parameter h being taken on the abscissa in a graphical representation, the parameters ΔC and h being located within an area defined by four rectilinear lines given by the following mathematical equations:

$$h=\Delta C \quad (1)$$

$$h=2\Delta C \quad (2)$$

$$h=8 \quad (3)$$

$$\Delta C=1.5 \quad (4)$$

in which h and ΔC are measured in unit of μm.

10. A sliding bearing according to claim 9, in which a plurality of annular grooves are formed in the sliding surface to define a plurality of annular peaks which extend circumferentially between axially adjacent annular grooves, adjacent peaks being discontinuous from each other.

11. A sliding bearing according to claim 9, in which the valley-shaped recess is in the form of a gentle arc in cross-section.

12. A sliding bearing according to claim 9, in which the valley-shaped recess is trapezoidal in cross-section.

13. A sliding bearing according to claim 9, in which the adjacent peaks have a pitch of about 200 μm.

14. A sliding bearing according to claim 9, in which a helical groove is formed in the sliding surface to define an annular continuous peak which extends circumferentially between axially adjacent grooves.

15. A sliding bearing including a plurality of axially spaced, annular continuous or discontinuous peaks which extend circumferentially on a surface of the sliding bearing which comes into sliding contact with a rotating shaft in which, as viewed in an axial cross-section, the various portions are defined on the basis of an imaginary reference line which intersects with individual peak regions, extends parallel to the axis and is determined such that the total cross-sectional area of peak regions located above the reference line is equal to the total cross-sectional area of valley-shaped recess regions located below the reference

line, the top of the peak having a height ΔC above the imaginary reference line and a height as measured from the bottom of the valley-shaped recess to the top of the peak, denoted by $\underline{h}$, the parameter ΔC being taken on an ordinate and the parameter $\underline{h}$ being taken on the abscissa in a graphical representation, the parameters ΔC and $\underline{h}$ being located within an area defined by three rectilinear lines given by the following mathematical equations:

$$\underline{h}=\Delta C \quad (1)$$

$$\underline{h}=5 \quad (2)$$

$$\Delta C=3 \quad (3)$$

in which $\underline{h}$ and ΔC are measured in unit of μm.

16. A sliding bearing according to claim 15, in which the valley-shaped recess is in the form of a gentle arc in cross-section.

17. A sliding bearing according to claim 15, in which the valley-shaped recess is trapezoidal in cross-section.

18. A sliding bearing according to claim 15, in which adjacent peaks have a pitch of about 200 μm.

19. A sliding bearing according to claim 15, in which a helical groove is formed in the sliding surface to define an annular continuous peak which extends circumferentially between axially adjacent grooves.

20. A sliding bearing according to claim 15, in which a plurality of annular grooves are formed in the sliding surface to define a plurality of annular peaks which extend circumferentially between axially adjacent annular grooves, adjacent peaks being discontinuous from each other.

* * * * *

21. A sliding bearing according to claim 1, in which the valley-shaped recess has a cross-sectional shape that is not exactly geometrically circular.

22. A sliding bearing according to claim 9, in which the valley-shaped recess has a cross-sectional shape that is not exactly geometrically circular.

23. A sliding bearing according to claim 15, in which the valley-shaped recess has a cross-sectional shape that is not exactly geometrically circular.

24. A sliding bearing including a plurality of axially spaced, annular continuous or discontinuous peaks which extend circumferentially on a surface of the sliding bearing which comes into sliding contact with a rotating shaft in which, as viewed in an axial cross-section, the various portions are defined on the basis of an imaginary reference line which intersects with individual peak regions, extends parallel to the axis and is determined such that the total cross-sectional area of peak regions located above the reference line is equal to the total cross-sectional area of valley-shaped recess regions located below the reference line, the top of the peak having a height ΔC above the imaginary reference line and a height as measured from the bottom of the valley-shaped recess to the top of the peak, denoted by h, the parameter ΔC being taken on an ordinate and the parameter h being taken on the abscissa in a graphical representation, the parameters ΔC and h being located within an area defined by four rectilinear lines given by the following mathematical equations:

$$h=\Delta C \qquad (1)$$

$$h=5/1.9\Delta C \qquad (2)$$

$$h=8 \qquad (3)$$

$$\Delta C=1 \qquad (4)$$

and wherein $\Delta C/h$ is not between 0.666 and 0.669,
in which h and ΔC are measured in unit of μm.

25. A sliding bearing according to claim 24, in which ΔC is from 1 to 8 μm.

26. A sliding bearing according to claim 24, in which the pitch is 200 μm.

27. A sliding bearing according to claim 24, in which a helical groove is formed in the sliding surface to define an annular continuous peak which extends circumferentially between axially adjacent grooves.

28. A sliding bearing according to claim 24, in which a plurality of annular grooves are formed in the sliding surface to define a plurality of annular peaks which extend circumferentially between axially adjacent annular grooves, adjacent peaks being discontinuous from each other.

29. A sliding bearing according to claim 24, in which the valley-shaped recess has a cross-sectional shape that is not exactly geometrically circular.

30. A sliding bearing according to claim 24, in which $h<3$.